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Impact of a Decline in Colorado Medicaid Managed Care Enrollment on Access and Quality of Preventive Primary Care Services

Stephen Berman, MD*‡; Carl Armon, MSPH§; and James Todd, MD*‡§‖

ABSTRACT. *Background.* **Beginning in 1997 the Colorado Medicaid program de-emphasized managed care and shifted children from enrollment in a health maintenance organization (HMO), which required an enrollee to have an assigned primary care physician, to either the unassigned fee-for-service (UFFS) program in which the enrollee was not required to have a primary care physician (PCP) or to the primary care physician program (PCPP) in which the enrollee was required to select a participating PCP if one was available. The proportion of Medicaid enrollee-months in HMOs dropped from 75.4% in 1997 to 29% in 2003, whereas the proportion of enrollee-months in UFFS programs during this time period increased from 18.6% to 45.6%, and the proportion in the PCPP increased from 5.5% to 25.3%. This shift of children from HMO managed care to the UFFS program provided a natural experiment to assess the impact of not having an assigned PCP on pediatric primary care services.**

Objective. **We sought to assess whether an elective shift of children from Medicaid HMO managed care plans with an assigned PCP to the UFFS program without an assigned PCP restricted access to a primary care medical home, recommended health supervision visits, and age-appropriate immunizations.**

Methods. **Published Colorado Health Plan Employer Data and Information Set (HEDIS) data for 1999–2003 were reviewed to determine if Colorado children enrolled in Medicaid managed care programs with an assigned PCP (HMO and PCPP) compared with the UFFS program were more likely to have any type of visit with a PCP, to have recommended health supervision visits, and to be fully immunized. In the analysis, "HMO total" refers to the average of all children participating in HMO plans. Kaiser Permanente was considered a benchmark because it had the highest immunization rates of all HMOs. "Total Colorado" refers to the average of all children enrolled in Medicaid including the managed care and UFFS options. For 2-year-olds, the 4:3:2:1:1 combination immunization included 4 diphtheria-tetanus-acellular pertussis vaccines, 3 oral poliovirus vaccines or inactivated polio vaccines, 2 hepatitis B vaccines, 1 *Haemophilus influenzae* type b vaccine, and 1 measles-mumps-rubella vaccine.**

Results. **In 1999 the percentages of children 12 to 24 months of age having any type of visit with a PCP were >80% for the PCPP, Kaiser Permanente, and UFFS programs. However, although the proportion with any visit remained >85% in 2001 for children enrolled in the PCPP and Kaiser Permanente program, the percentage dropped 13.9% to 66.2% for children in the UFFS program. In 2001 the percentage of children with any type of PCP visit enrolled in the UFFS program (66.2%) was significantly lower than the total Colorado (73.6%) as well as the PCPP (85.7%) and Kaiser Permanente program (97.7%). Children 12 to 24 months of age enrolled in the PCPP in 2001 were 1.3 times more likely to have any type of visit with a PCP compared with those enrolled in the UFFS program.**

Children in the PCPP in 2001, 2002, and 2003 were 1.4, 1.9, and 2.6 times more likely, respectively, to have all 6 of the recommended health supervision visits compared with children enrolled in the UFFS program. Children 3 to 6 years old in the PCPP in 2001, 2002, and 2003 were 1.3, 1.5, and 1.4 times more likely, respectively, to have an annual health supervision visit compared with children enrolled in the UFFS program.

In 1999, 2001, 2002, and 2003 2-year-old children enrolled in the PCPP were 2.0, 1.4, 1.5, and 1.8 times more likely, respectively, to be up-to-date with 4:3:2:1:1 vaccines compared with children enrolled in the UFFS program. In 1999, 2001, 2002, and 2003 adolescents enrolled in the PCPP were 1.8, 1.6, 1.3, and 1.6 times more likely, respectively, to be up-to-date with 2 measles-mumps-rubella vaccines compared with children enrolled in the UFFS program.

Conclusions. **This study documents the diminishing ability of the Colorado Medicaid program to provide children access to the benefits of a medical home, including visits with PCPs, recommended health supervision visits, and immunizations as care was shifted to the UFFS program from HMO managed care. The high up-to-date immunization rates achieved by Kaiser Permanente suggest that differences in immunization rates reflect the effectiveness of the care processes rather than the characteristics of the Medicaid population. *Pediatrics* 2005; 116:1474–1479; *managed care, primary care physician, health supervision visits, and immunizations.***

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ABBREVIATIONS. HMO, health maintenance organization; PCP, primary care physician; PCPP, primary care physician program; UFFS, unassigned fee-for-service; HEDIS, Health Plan Employer Data and Information Set; AAP, American Academy of Pediatrics; CI, confidence interval; dTaP, diphtheria-tetanus-acellular pertussis; MMR, measles-mumps-rubella; VZV, varicella-zoster vaccine; 4:3:2:1:1, 4 diphtheria-tetanus-acellular pertussis vaccines, 3 oral poliovirus vaccines or inactivated polio vaccines, 2 hepatitis B vaccines, 1 *Haemophilus influenzae* type b vaccine, and 1 measles-mumps-rubella vaccine.

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Colorado Medicaid has 2 approaches to pediatric managed care: enrollment in a health maintenance organization (HMO), which requires that the enrollee have an assigned primary care physician (PCP), or enrollment in the primary care physician program (PCPP), which requires the enrollee to select an available participating PCP who is paid a monthly case management fee to authorize additional services and provide telephone availability 24 hours per day, 7 days per week. In both of these managed care options, physicians are paid fee-for-service rather than by capitation. In addition to these managed care programs, there is an unassigned PCP fee-for-service (UFFS) program in which the enrollee is not required to have a PCP and may not be able to find one willing to accept new Medicaid patients. When parents of children in the UFFS program who desire but cannot find a PCP in private practice willing to accept Medicaid patients, the 2 options are to obtain care in a clinic (hospital or community based) or seek episodic care from an emergency department or urgent care center. To determine the likelihood that the parents of children enrolled in UFFS Medicaid could find a private pediatrician willing to accept new Medicaid patients, we conducted a statewide survey of primary care pediatricians in private practice.

During 1999 and 2001, 5 HMOs participated in the Colorado Medicaid program, including Kaiser Permanente, Colorado Access, Community Health Plan of the Rockies, United Healthcare, and Rocky Mountain HMO. Before 1998, children (excluding children with special health care needs) were automatically assigned to 1 of these 5 participating HMOs. However, after 3 of the commercial HMOs discontinued their participation in the program because of financial losses and brought legal action against the state, automatic assignment was stopped and enrollment in the HMO component sharply decreased while enrollment in the UFFS program increased. On the basis of published National Committee for Quality Assurance Health Plan Employer Data and Information Set (HEDIS) reports and data provided by the state Medicaid agency,[1] the proportion of Medicaid enrollee-months in HMOs (displayed in Fig 1) decreased from 75.4% in 1997 to 29% in 2003, whereas the proportion of enrollee-months in the UFFS program during this time period increased from 18.6% to 45.6% and the proportion in the PCPP increased from 5.5% to 25.3%.[2–5] While this shift was occurring, more children were eligible and enrolling in Colorado Medicaid; the number of enrolled Medicaid children 18 years and younger increased from 160 968 in 1999 to 193 562 in 2001 (American Academy of Pediatrics [AAP], Medicaid reports based on Health Care Financing Administration/Centers for Medicare and Medicaid Services MSIS2082 data for 1999 and 2001, written communication, 2005). This shift of children from HMO managed care to UFFS provided a natural experiment to assess the impact of not having an assigned PCP on pediatric primary care services by analyzing Colorado HEDIS reports.

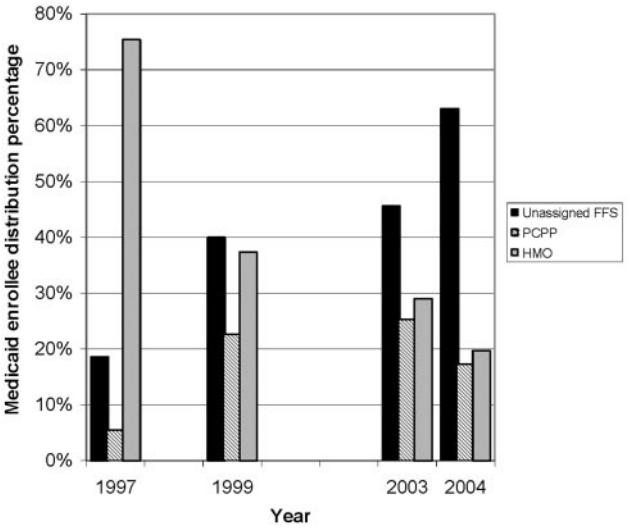

Fig 1. HEDIS and Colorado Department of Health Care Policy and Financing reported percentage distribution of total Medicaid enrollees based on months of enrollment in the UFFS program, PCPP, and managed care HMO from 1997 to 2004.

METHODS

Surveys conducted in collaboration with the Colorado chapter of the AAP assessed pediatrician participation in public and private health insurance programs in 2000 and 2003. The 2000 (first) survey was mailed to a random sample of 293 of the 721 pediatrician Fellows of the AAP living in Colorado from December 1999 to April 2000 as part of the national AAP Periodic Survey. The 2003 (second) survey was mailed twice to all 548 members of the Colorado chapter of the AAP, with completed surveys received from 231 (42.2%) members. Among the respondents, 97 were primary care pediatricians in private office-based practice, and 92 were accepting new privately insured patients. These 92 pediatricians did not include salaried primary care and/or subspecialty pediatricians who practice in staff-model HMOs such as Kaiser Permanente, academic settings such as the Children's Hospital, or community health centers, because these pediatricians do not make individual decisions about whether to see Medicaid patients.

Data from 4 published HEDIS reports of Colorado Medicaid performance were analyzed to compare data for 1999, 2001, 2002, and 2003.[2–5] The Colorado Department of Health Care Policy and Financing contracted with First Peer Review of Colorado to calculate and submit identified HEDIS performance measures for the PCPP and UFFS program in 1999. The HEDIS reports evaluating the quality of health care delivered to Colorado Medicaid clients in 2001, 2002, and 2003 were conducted by the Health Service Advisory Group, the department's external quality-review organization, which contracted with HEDIS HELP to calculate the measures for the PCPP and UFSS populations. Because this was a retrospective comparison of available HEDIS reports, populations and methods for outcome measurement varied from year to year although the actual processes measured did not change. Significant differences for outcomes in any year were validated by the consistency of direction of change for those differences in previous and subsequent years.

During 1999 and 2001, 5 health plans participated in the Colorado Medicaid Managed Care program and submitted HEDIS data. These plans included Kaiser Permanente, Colorado Access, Community Health Plan of the Rockies, United Healthcare, and Rocky Mountain HMO. In 2002 only 2 plans participated: Colorado Access and Rocky Mountain HMO. In the analysis, "HMO total" refers to the average of all children participating in HMO plans; "total Colorado" refers to the average of all children enrolled in Medicaid, including the managed care and UFFS options.

All plans used auditors who were approved by the National Committee for Quality Assurance and independently certified each health plan's results. For the HEDIS measures, there was a choice of 2 methodologic approaches: the administrative or hybrid method. By using the administrative method, the eligible popula-

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tion (members who satisfied all the denominator criteria for a measure) was calculated from client eligibility and/or enrollment databases. The positive numerator events were determined from the paid claims database or, in the case of HMOs, possibly an encounter database. The rate was calculated by using all of the eligible population. Kaiser Permanente used the administrative method.

The hybrid method identified a random sample of 411 members of the eligible population for a medical review of the services being assessed as described by the National Committee for Quality Assurance HEDIS methodology.[5] Several HMOs and the PCPP and UFFS program used the hybrid method. A medical-record review was performed on the records of members whose claims data did not indicate that the services were received. The reported rate was the arithmetic mean of the administrative or hybrid measure. In 1999 and 2001, the 95% confidence intervals (CIs) were reported for some measures. CIs were not reported for 2002 or 2003 data. The HEDIS report for 2002 indicates whether the rate was statistically ($P < .05$) above or below the total Colorado Medicaid average. This is indicated in the tables by the notations "[A]" for above and "[B]" for below the total Medicaid average.

The childhood immunization outcome measure calculated the number of children who turned 2 years old during the year of analysis who were continuously enrolled for the 12 months immediately proceeding their second birthday and who received the indicated immunizations. For these 2-year-old children, HEDIS reported combination rates for the 4:3:2:1:1 (4 diphtheria-tetanus-acellular pertussis [dTaP] vaccines, 3 oral poliovirus vaccines or inactivated polio vaccines, 2 hepatitis B vaccines, 1 *Haemophilus influenzae* type b vaccine, and 1 measles-mumps-rubella [MMR] vaccine), with or without varicella-zoster vaccine (VZV), in addition to individual vaccines. For adolescents, HEDIS reported individual vaccines and combination rates for 2 MMR and hepatitis B vaccines with and without VZV. In 2001 and 2002 HEDIS reported on 1 hepatitis B immunization, whereas in 1999 3 hepatitis B immunizations were reported.

RESULTS

Participation of Private-Practice Pediatricians in Medicaid

Medicaid-participation surveys of Colorado pediatricians conducted in 2000 and 2003 documented a significant decrease (18.5%; $P < .05$) from 41.4% in 2000 to 23.9% in 2003 in the percentage of pediatricians who accepted all Medicaid patients. The most influential reason cited for this decreased participation was low reimbursement that failed to cover overhead costs. According to the 2003 survey results, 83% (up from 57% in 2000) of respondents believed that low Medicaid payments failed to cover the overhead costs of visits. If reimbursement would remain unchanged, 38% of Colorado pediatricians reported that they would care for fewer Medicaid patients in the future. If Medicaid rates were increased to 100% of Medicare (an ~50% increase), more than half of the pediatricians would be willing to accept more Medicaid patients. If Medicaid reimbursement rates were doubled (a 100% increase) so that they would be comparable to private rates, 82.4% of Colorado pediatricians indicated that they would consider treating more Medicaid patients, and >65% of the pediatricians would accept all Medicaid patients. In addition to the dominant problem of inadequate reimbursement, pediatricians said there were substantial administrative problems with all 3 types of Medicaid in Colorado. These problems exacerbated the effect of low payments and further influenced pediatricians' reluctance to accept Medicaid patients.

Any Visit With a PCP

The percentages of pediatric enrollees who had any type of visit (sick or preventive care) with a PCP during 1999 and 2001 are shown in Table 1 according to 3 age ranges; 12 to 24 months, 25 months to 6 years, and 7 to 11 years. The HEDIS report for 2002 and 2003 did not report the percentage of pediatric enrollees who had any type of visit with a PCP.

In 1999 the percentages of children 12 to 24 months of age having any type of visit with a PCP were >80% for PCPP, Kaiser Permanente, and the UFFS programs. However, although the proportion with any visit remained >85% in 2001 for children enrolled in the PCPP and Kaiser Permanente program, it dropped 13.9% to 66.2% for children in the UFFS program. In 2001 the percentage of children with a PCP visit enrolled in the UFFS program was significantly lower (as shown by the 95% CIs) than the total Colorado and the PCPP and Kaiser Permanente groups. Children 12 to 24 months of age who were enrolled in the PCPP in 2001 were 1.3 times more likely to have any type of visit with a PCP compared with those who were enrolled in the UFFS program. Similar differences were noted in the older age groups as well. Children enrolled in the UFFS program had the largest relative decreases in the percentages of children having a primary care visit from 1999 to 2001 across all 3 age groups (17.4% for 12–24 months, 17% for 25 months to 6 years, and 24.6% for 7–11 years). These data are consistent with a reduction in access to PCPs, possibly related to both an increasing number of children in the UFFS program and a decreasing willingness of private physicians to accept new patients with UFFS Medicaid.

Health Supervision Visits

Figure 2 displays the percent of Medicaid clients having varying numbers of health supervision visits during the first 15 months of age during 2001 according the type of program. A higher proportion of children in the UFFS program had 1 or no visits relative to children in other Medicaid programs. Children in the PCPP in 2001, 2002, and 2003 were

TABLE 1. HEDIS-Reported Percentages of Pediatric Enrollees Who Had Any Type of Visit With a PCP

Program According to Age	1999, %	2001, % (95% CI)	Absolute Change
12–24 mo			
HMO (total)	85.9	71.4 (70.2–72.6)	−14.5
Kaiser Permanente	89.5	97.7 (95.8–99.6)	+8.2
PCPP	88.1	85.7 (84.0–87.4)	+2.4
UFFS	80.1	66.2 (63.3–69.2)	−13.9
Total Colorado	84.7	73.6 (72.7–74.6)	−11.1
25 mo to 6 y			
HMO (total)	63.6	62.1 (61.3–62.8)	−1.5
Kaiser Permanente	82.5	86.5 (84.5–88.6)	−4.0
PCPP	73.2	68.5 (67.4–69.6)	−4.7
UFFS	50.8	41.7 (40.2–43.3)	−9.1
Total Colorado	62.8	60.6 (60.0–61.2)	−2.2
7–11 y			
HMO (total)	83.2	63.8 (62.6–65.0)	−19.4
Kaiser Permanente	89.1	91.3 (88.5–94.1)	+2.2
PCPP	75.0	73.7 (72.3–75.1)	−1.3
UFFS	63.8	48.1 (46.3–49.8)	−15.7
Total Colorado	76.8	63.0 (62.2–63.8)	−13.8

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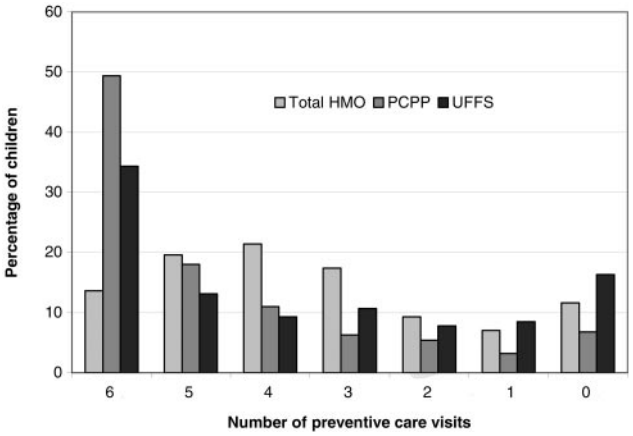

Fig 2. HEDIS-reported percentage of Medicaid clients having varying numbers of preventive care visits during the first 15 months of age during 2001 according to their type of program.

1.4, 1.9, and 2.6 times more likely, respectively, to have all 6 of the recommended health supervision visits compared with children enrolled in the UFFS program. Children in the PCPP in 2001 and 2002 were 1.4 and 1.8 times more likely, respectively, to have at least 4 visits compared with children enrolled in the UFFS program. Data were not available for 2003. Children 3 to 6 years old in the PCPP in 2001, 2002, and 2003 were 1.3, 1.5, and 1.4 times more likely, respectively, to have an annual health supervision visit compared with children enrolled in the UFFS program.

Immunization Status

Because children receive the majority of their immunizations during health supervision visits, it is likely that up-to-date immunization rates will be higher for children enrolled in managed care options that provide more health supervision visits. Table 2 shows the immunization rates for the 4:3:2:1:1 combination without VZV for Kaiser Permanente, HMO total, the PCPP, UFFS program, and total Colorado Medicaid for 1999, 2001, 2002, and 2003. In 1999 and 2001 the percentages of 2-year-old children with 4:3:2:1:1 vaccines were significantly higher for children enrolled in Kaiser Permanente (72.9% and 66.2%), HMO total (44.6% and 41.8%), and the PCPP (41.9% and 45.7%) compared with those enrolled in the UFFS program (20.9% and 33.8%). CIs were not reported in 2002, but the UFFS immunization rate in that year (21.7%) was below the statewide Medicaid average (26.4%), whereas the PCPP rate was above average (33.3%) and total HMO rate was average (25.3%). In 1999, 2001, 2002, and 2003, 2-year-old children enrolled in the PCPP were 2.0, 1.4, 1.5, and 1.8 times more likely, respectively, to be up-to-date with 4:3:2:1:1 vaccines compared with children enrolled in the UFFS program. The very low combination rates were predominately related to low rates for 4 dTaP vaccines, which were impacted by vaccine shortages. In 1999 and 2001 the percentages of 2-year-old children with at least 4 dTaP vaccines were significantly higher for children enrolled in Kaiser Permanente (81.4% and 76.2%), HMO total (65.2% and 55.4%), and the PCPP (61.8% and 57.9%) compared with those enrolled in the UFFS program (31.9% and 45.7%). UFFS rates in 1999 and 2001 (28.5% and 41.6%, respectively) were below the statewide Medicaid average (34.7% and 61.5%) and the rates for PCPP-enrolled children (43.3% and 65.9%). In 1999, 2001, 2002, and 2003, 2-year-old children enrolled in the PCPP were 1.9, 1.3, 1.5, and 1.6 times more likely, respectively, to be up-to-date with 4 dTaP vaccines compared with children enrolled in the UFFS program.

As shown in Table 2, the percentages of adolescents in 1999, 2001, 2002, and 2003 with 2 MMR vaccines were also significantly higher for children enrolled in Kaiser Permanente, HMO total, and the PCPP compared with those enrolled in the UFFS program. In 1999, 2001, 2002, and 2003, adolescents enrolled in the PCPP were 1.8, 1.6, 1.3, and 1.6 times more likely, respectively, to be up-to-date with 2 MMR vaccines compared with children enrolled in the UFFS program.

DISCUSSION

Our results show significantly lower rates of primary care visits, preventive care visits, and immunizations for children in the UFFS program compared with those in the HMO and non-HMO Medicaid managed care programs, which require the selection of a PCP. Our study differed from other reported

TABLE 2. HEDIS-Reported Immunization Rates for Medicaid Enrollees According to Type of Medicaid Programs

	1999, % (95% CI)	2001, % (95% CI)	2002, %*	2003, % of the 2 Participating HMOs
4:3:2:1:1 (2 y of age)				
HMO (total)	44.6 (47.6–41.6)	41.8 (44.1–39.5)	25.3	51.0 and 65.2
Kaiser Permanente	72.9 (85.1–60.7)	66.2 (72.8–59.6)	NP	NP
PCPP	41.9 (46.5–37.2)	45.7 (50.7–40.8)	33.3 [A]	55.5
UFFS	20.9 (24.7–17.1)	33.8 (38.5–29.1)	21.7 [B]	31.4
Total Colorado	38.6 (40.8–36.4)	41.1 (43.0–39.2)	26.4	50.8
2 MMR (adolescent)				
HMO (total)	70.2 (NA) [A]	45.8 (48.9–42.8)	NA	NA
Kaiser Permanente	81.8 (NA) [A]	76.9 (85.5–68.3)	NA	NA
PCPP	54.0 (NA)	58.9 (63.8–54.0)	57.2 [A]	53.3
UFFS	29.7 (NA) [B]	37.2 (42.0–32.4)	44.0 [B]	33.6
Total Colorado	55.8 (NA)	46.8 (49.1–44.6)	50.6	43.4

* In 2002, CIs were not provided; however, a notation was made if the group mean was significantly above ([A]), or below ([B]) the overall total Colorado mean. This information was not provided for 2003. NA indicates data not available; NP, the HMO was nonparticipating in that year.

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HEDIS studies in 2 ways. First, we looked at differences over 4 points in time rather than analyzing data in relation to whether the child was in managed or non–managed care at a single time period. Second, most of the other studies were conducted as children were shifting from traditional fee-for-service plans to HMO managed care. In this study, the shift is in the opposite direction from HMO managed care (with fee-for-service payments to physicians) with an assigned PCP to non–managed care fee-for-service care without good access to primary care, because the willingness of private pediatricians and family physicians to accept new Medicaid patients was eroding.

The data show that children in the UFFS program experienced a marked decline in the percentage having any type of PCP visit between 1999 and 2001. In 1999 there were fewer children in the UFFS program and more physicians in private practice willing to accept new Medicaid children, so children in the UFFS program had better access to private PCPs and a larger proportion had any type of PCP visit. As the number of children in the UFFS program increased and the willingness of PCPs diminished, the proportion of children in the UFFS program with any visit to a PCP decreased.

There have been a number of studies that have compared preventive care services and immunization rates in Medicaid managed care and fee-for-service settings. The results vary, because preventive care visits and immunization status are influenced by many additional factors such as physician capacity in managed care and fee-for-service settings, payments for vaccines and administration, use of registry and reminder/recall systems, availability of immunizations in non–primary care sites (public health clinics, health fairs, and schools), and selection bias in managed care enrollment compared with non–managed care populations. The importance of these factors and their variability in states and regions explain why children enrolled in Medicaid managed care compared with non–managed care fee-for-service Medicaid plans have similar or lower immunization rates in some studies, whereas in other studies children enrolled in Medicaid managed care programs have more preventive care visits and higher immunization rates.

Our findings of better immunization rates in HMO and non-HMO managed care plans with an assigned PCP are consistent with several other studies. One example is the study of childhood immunization rates reported by Kirschke et al[6] for children in Medicaid fee-for-service and managed care plans in Tennessee from 1986 to 1999. Children enrolled in managed care Medicaid (TennCare) were more likely to be fully immunized than children in fee-for-service non–managed care Medicaid plans. In addition, managed care enrollment was associated with a narrowing of the immunization gap between black and white children. In New York City, New York, Hanson et al[7] compared the up-to-date rates for Medicaid beneficiaries receiving care in the offices of 60 private physicians who were enrolled in managed care and fee-for-service plans. The children enrolled in managed care Medicaid were 1.5 times more likely to be up-to-date for immunizations. This study differed from our Colorado study, because all the children had a relationship with a PCP in private practice. Therefore, the differences observed in the New York City study more likely reflect the influence of HMO managed care and fee-for-service care processes and payment methods. These investigators also published a study comparing preventive care for children in Medicaid managed care and fee-for-service plans in private and institutional settings.[8] Again, children in Medicaid managed care plans were more likely to be up-to-date and have more preventive care visits. Cotter et al[9] compared immunizations in Medicaid children in a primary care case management program, a voluntary HMO, and a mandatory HMO. Primary care case management had the highest up-to-date rates compared with the voluntary HMO and the mandatory HMO population.

Other studies have failed to document differences between managed care and fee-for-service plans. Alessandrini et al[10] studied a consecutive sample of infants born in Pennsylvania in 1994 and 1995 who were either assigned to a Medicaid HMO or had the option to remain in a fee-for-service plan. Eighty-five percent were enrolled in HMOs, and 85% of all mothers identified a PCP at enrollment regardless of whether they were in the HMO or fee-for-service program. There were no differences in immunization rates for a combination of 4 dTaP vaccines, 3 poliovirus vaccines, 4 *Haemophilus influenzae* type b vaccines, and 3 hepatitis B vaccines. Studies conducted in California and Missouri in 1985 also failed to find a difference in immunization rates between children in Medicaid managed care and fee-for-service plans.[11] Similarly, another study in Los Angeles, California, in 1992 found comparable rates for both Medicaid options.[12] In New Mexico the shift from traditional fee-for-service to Medicaid managed care was associated with a drop in up-to-date rates because the shift reallocated resources away from public health clinics and county nursing services and the capacity of community health centers to care for HMO enrollees was insufficient to meet the need.[13] Two other studies also reported lower immunization rates for low-income children enrolled in managed care.[14,15]

Although our study found substantial variability in preventive care visits and up-to-date immunization rates among the participating Medicaid managed care plans, Kaiser Permanente, the only participating staff-model HMO, consistently had the highest immunization levels. Vivier et al[16] studied children 19 to 35 months of age living in Rhode Island and enrolled in Medicaid during 1996–1997. The study also found that the staff-model HMO achieved the highest up-to-date immunization levels. Compared with office-based practices, the odds for children being up-to-date were 2.15 times greater (95% CI: 1.57–2.95) for a staff-model HMO. There were no significant differences between office-based practices and health centers or hospital-based clinics, and immunization status was not associated with any family or child sociodemographic characteristic.

It is unclear whether differences in performance

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measures reflect differences in the populations enrolled in HMOs or care processes. Thompson et al[17] reported on national HEDIS data for health plans that served both commercial and Medicaid populations. Children with commercial insurance usually had higher immunization up-to-date rates than Medicaid children enrolled in the same health plan; however, there were some plans that achieved comparably high rates for both populations. These plans tended to have been operational for a longer time. These data support the contention that differences in immunization rates in large part reflect the effectiveness of the care processes of the delivery systems rather than the characteristics of the Medicaid population. The high immunization rates achieved by Kaiser Permanente in Colorado also supports this view. Low payments to PCPs for preventive health services in the private sector have also been shown to be associated with lower immunization rates.[18]

Severe shortages of dTaP in Colorado likely contributed to the low immunization rates reported by HEDIS in Colorado, especially for children in the UFFS program. The low combination up-to-date rates for 2-year-olds seem to be predominately related to low dTaP levels, and children without a regular PCP may have been less likely to be immunized when vaccine became available.

There are a number of limitations to this study. First, there were 2 methodologies for determining the HEDIS measures. For the PCPP and UFFS program, investigators used a random sample of 411 children, whereas Kaiser Permanente and some other HMOs used the administrative method, which included all qualifying children. In addition, the HEDIS reports differed slightly from year to year on the number of vaccines in the combinations. The HEDIS reports presented percentages (not numbers) and only showed 95% CIs for 1999 and 2001 data. It also is unclear whether these findings can be generalized to other states, especially those with less restrictive child health policies. Nonetheless, it would seem that Medicaid patients benefit from the provision of a medical home as defined by the provision of a PCP, resulting in increased primary care visits, increased preventive care services, and improved immunization rates. We also found a correlation between UFFS program members and hospitalization rates in the pediatric Colorado Medicaid population (unpublished data). Our findings have important health policy implications at both the state and national levels. Given national budget legislation that targets $10 billion in Medicaid cuts, policies that will reduce participation of private PCPs are likely to compromise care and result in excessive per-capita Medicaid expenditures. Efforts to provide equal access to health care for Medicaid and commercially insured patients should include sufficient support to assure PCP participation in Medicaid programs.

CONCLUSIONS

This study documents the diminishing ability of the Colorado Medicaid program to provide children access to the benefits of a medical home, including PCPs, basic preventive care services, and immunizations as care was shifted to a UFFS program from managed care. The high rates for immunizations achieved by Kaiser Permanente suggest that differences in immunization rates reflect the effectiveness of the care processes of the delivery systems rather than the characteristics of the Medicaid population.

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